



UBCV0004.ST25.txt  
SEQUENCE LISTING

<110> Finlay, Brett B.  
Kenny, Brandant  
DeVinney, Rebekah  
Stein, Marcus

<120> HOST RECEPTOR FOR PATHOGENIC BACTERIA

<130> UBCV-0004

<140> US 09/189,415  
<141> 1998-11-10

<150> US 60/065,130  
<151> 1997-11-12

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<170> PatentIn version 3.3

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UBCV0004.ST25.txt

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Gly Thr Gly His Leu Ile Ser Ser Thr Gly Ala Leu Gly Ser Arg Ser  
35 40 45

Leu Phe Ser Pro Leu Arg Asn Ser Met Ala Asp Ser Val Asp Ser Arg  
50 55 60

Asp Ile Pro Gly Leu Pro Thr Asn Pro Ser Arg Leu Ala Ala Ala Thr  
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Ser Glu Thr Cys Leu Leu Gly Gly Phe Glu Val Leu His Asp Lys Gly  
85 90 95

Pro Leu Asp Ile Leu Asn Thr Gln Ile Gly Pro Ser Ala Phe Arg Val  
100 105 110

Glu Val Gln Ala Asp Gly Thr His Ala Ala Ile Gly Glu Lys Asn Gly  
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UBCV0004.ST25.txt

Leu Glu Val Ser Val Thr Leu Ser Pro Gln Glu Trp Ser Ser Leu Gln  
130 135 140

Ser Ile Asp Thr Glu Gly Lys Asn Arg Phe Val Phe Thr Gly Gly Arg  
145 150 155 160

Gly Gly Ser Gly His Pro Met Val Thr Val Ala Ser Asp Ile Ala Glu  
165 170 175

Ala Arg Thr Arg Ile Leu Ala Lys Leu Asp Pro Asp Asn His Gly Gly  
180 185 190

Arg Gln Pro Lys Asp Val Asp Thr Arg Ser Val Gly Val Gly Ser Ala  
195 200 205

Ser Gly Ile Asp Asp Gly Val Val Ser Glu Thr His Thr Ser Thr Thr  
210 215 220

Asn Ser Ser Val Arg Ser Asp Pro Lys Phe Trp Val Ser Val Gly Ala  
225 230 235 240

Ile Ala Ala Gly Leu Ala Gly Leu Ala Ala Thr Gly Ile Ala Gln Ala  
245 250 255

Leu Ala Leu Thr Pro Glu Pro Asp Asp Pro Thr Thr Thr Asp Pro Asp  
260 265 270

Gln Ala Ala Asn Ala Ala Glu Ser Ala Thr Lys Asp Gln Leu Thr Gln  
275 280 285

Glu Ala Phe Lys Asn Pro Glu Asn Gln Lys Val Asn Ile Asp Ala Asn  
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Gly Asn Ala Ile Pro Ser Gly Glu Leu Xaa Asp Asp Ile Val Glu Gln  
305 310 315 320

Ile Ala Gln Gln Ala Lys Glu Ala Gly Glu Val Ala Arg Gln Gln Ala  
325 330 335

Val Glu Ser Asn Ala Gln Ala Gln Gln Arg Tyr Glu Asp Gln His Ala  
340 345 350

Arg Arg Gln Glu Glu Leu Gln Leu Ser Ser Gly Ile Gly Tyr Gly Leu  
355 360 365

Ser Ser Ala Leu Ile Val Ala Gly Gly Ile Gly Ala Gly Val Thr Thr  
370 375 380

Ala Leu His Arg Arg Asn Gln Pro Ala Glu Gln Thr Thr Thr Thr Thr  
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UBCV0004.ST25.txt

Thr His Thr Val Val Gln Gln Gln Thr Gly Gly Ile Pro Gln His Lys  
405 410 415

Val Ala Leu Met Pro Gln Glu Arg Arg Arg Phe Ser Asp Arg Arg Asp  
420 425 430

Ser Gln Gly Ser Val Ala Ser Thr His Trp Ser Asp Ser Ser Ser Glu  
435 440 445

Val Val Asn Pro Tyr Ala Glu Val Gly Gly Ala Arg Asn Ser Leu Ser  
450 455 460

Ala His Gln Pro Glu Glu His Ile Tyr Asp Glu Val Ala Ala Asp Pro  
465 470 475 480

Gly Tyr Ser Val Ile Gln Asn Phe Ser Gly Ser Gly Pro Val Thr Gly  
485 490 495

Arg Leu Ile Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu  
500 505 510

Leu Ala Asn Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Ser  
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Pro Val Arg Phe Val  
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UBCV0004.ST25.txt

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<212> PRT  
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Gly Gln Leu Ile Asn Ser Thr Gly Pro Leu Gly Ser Arg Ala Leu Phe  
35 40 45

Thr Pro Val Arg Asn Ser Met Ala Asp Ser Gly Asp Asn Arg Ala Ser  
50 55 60

Asp Val Pro Gly Leu Pro Val Asn Pro Met Arg Leu Ala Ala Ser Glu  
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Ile Thr Leu Asn Asp Gly Phe Glu Val Leu His Asp His Gly Pro Leu  
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UBCV0004.ST25.txt

Asp Thr Leu Asn Arg Gln Ile Gly Ser Ser Val Phe Arg Val Glu Thr  
100 105 110

Gln Glu Asp Gly Lys His Ile Ala Val Gly Gln Arg Asn Gly Val Glu  
115 120 125

Thr Ser Val Val Leu Ser Asp Gln Glu Tyr Ala Arg Leu Gln Ser Ile  
130 135 140

Asp Pro Glu Gly Lys Asp Lys Phe Val Phe Thr Gly Gly Arg Gly Gly  
145 150 155 160

Ala Gly His Ala Met Val Thr Val Ala Ser Asp Ile Thr Glu Ala Arg  
165 170 175

Gln Arg Ile Leu Glu Leu Leu Glu Pro Lys Gly Thr Gly Glu Ser Lys  
180 185 190

Gly Ala Gly Glu Ser Lys Gly Val Gly Glu Leu Arg Glu Ser Asn Ser  
195 200 205

Gly Ala Glu Asn Thr Thr Glu Thr Gln Thr Ser Thr Ser Thr Ser Ser  
210 215 220

Leu Arg Ser Asp Pro Lys Leu Trp Leu Ala Leu Gly Thr Val Ala Thr  
225 230 235 240

Gly Leu Ile Gly Leu Ala Ala Thr Gly Ile Val Gln Ala Leu Ala Leu  
245 250 255

Thr Pro Glu Pro Asp Ser Pro Thr Thr Thr Asp Pro Asp Ala Ala Ala  
260 265 270

Ser Ala Thr Glu Thr Ala Thr Arg Asp Gln Leu Thr Lys Glu Ala Phe  
275 280 285

Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Leu Gly Asn Ala  
290 295 300

Ile Pro Ser Gly Val Leu Lys Asp Asp Val Val Ala Asn Ile Glu Glu  
305 310 315 320

Gln Ala Lys Ala Ala Gly Glu Glu Ala Lys Gln Gln Ala Ile Glu Asn  
325 330 335

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Glu Glu Leu Lys Val Ser Ser Gly Ala Gly Tyr Gly Leu Ser Gly Ala  
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Leu Ile Leu Gly Gly Gly Ile Gly Val Ala Val Thr Ala Ala Leu His  
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Arg Lys Asn Gln Pro Val Glu Gln Thr Thr Thr Thr Thr Thr Thr Thr  
385 390 395 400

Thr Thr Thr Ser Ala Arg Thr Val Glu Asn Lys Pro Ala Asn Asn Thr  
405 410 415

Pro Ala Gln Gly Asn Val Asp Thr Pro Gly Ser Glu Asp Thr Met Glu  
420 425 430

Ser Arg Arg Ser Ser Met Ala Ser Thr Ser Ser Thr Phe Phe Asp Thr  
435 440 445

Ser Ser Ile Gly Gly Pro Cys Arg Ile Arg Met Leu Met Leu Lys His  
450 455 460

Arg Cys Met Ile Arg Arg Cys Arg Leu Leu Ile Leu Ile Arg Leu Phe  
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Arg Ile Trp Gly Ile Gln Ile Ser Val Val Tyr Ser Thr Ile Gln His  
485 490 495

Pro Pro Arg Asp Thr Thr Asp Asn Gly Ala Arg Leu Leu Gly Asn Pro  
500 505 510

Ser Ala Gly Ile Gln Ser Thr Tyr Ala Arg Leu Ala Leu Ser Gly Gly  
515 520 525

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35 40 45

Ser Ala Ile Gly Ser Ser Leu Phe Arg Val Glu Thr Arg Asp Asp Gly  
50 55 60

Ser His Val Ala Ile Gly Gln Lys Asn Gly Leu Glu Thr Thr Val Val  
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Leu Ser Glu Gln Glu Phe Ser Ser Leu Gln Ser Leu Asp Pro Glu Gly  
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UBCV0004.ST25.txt

Lys Asn Lys Phe Val Phe Thr Gly Gly Arg Gly Gly Pro Gly His Ala  
100 105 110

Met Val Thr Val Ala Ser Asp Ile Ala Glu Ala Arg Gln Arg Ile Ile  
115 120 125

Asp Lys Leu Glu Pro Lys Asp Thr Lys Glu Thr Lys Glu Pro Gly Asp  
130 135 140

Pro Asn Ser Gly Glu Gly Lys Ile Ile Glu Ile His Thr Ser Thr Ser  
145 150 155 160

Thr Ser Ser Leu Arg Ala Asp Pro Lys Leu Trp Leu Ser Leu Gly Thr  
165 170 175

Ile Ala Ala Gly Leu Ile Gly Met Ala Ala Thr Gly Ile Ala Gln Ala  
180 185 190

Val Ala Leu Thr Pro Glu Pro Asp Asp Pro Ile Thr Thr Asp Pro Asp  
195 200 205

Ala Ala Ala Asn Thr Ala Glu Ala Ala Ala Lys Asp Gln Leu Thr Lys  
210 215 220

Glu Ala Phe Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Asn  
225 230 235 240

Gly Asn Ala Ile Pro Ser Gly Glu Leu Lys Asp Asp Val Val Ala Gln  
245 250 255

Ile Ala Glu Gln Ala Lys Ala Ala Gly Glu Gln Ala Arg Gln Glu Ala  
260 265 270

Ile Glu Ser Asn Ser Gln Ala Gln Gln Lys Tyr Asp Glu Gln His Ala  
275 280 285

Lys Arg Glu Gln Glu Met Ser Leu Ser Ser Gly Val Gly Tyr Gly Ile  
290 295 300

Ser Gly Ala Leu Ile Leu Gly Gly Ile Gly Ala Gly Val Thr Ala  
305 310 315 320

Ala Leu His Arg Lys Asn Gln Pro Ala Glu Gln Thr Ile Thr Thr Arg  
325 330 335

Thr Val Val Asp Asn Gln Pro Thr Asn Asn Ala Ser Ala Gln Gly Asn  
340 345 350

Thr Asp Thr Ser Gly Pro Glu Glu Ser Pro Ala Ser Arg Arg Asn Ser  
355 360 365

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Asn Ala Ser Leu Ala Ser Asn Gly Ser Asp Thr Ser Ser Thr Gly Thr  
370 375 380

Val Glu Asn Pro Tyr Ala Asp Val Gly Met Pro Arg Asn Asp Ser Leu  
385 390 395 400

Ala Arg Ile Ser Glu Glu Pro Ile Tyr Asp Glu Val Ala Ala Asp Pro  
405 410 415

Asn Tyr Ser Val Ile Gln His Phe Ser Gly Asn Ser Pro Val Thr Gly  
420 425 430

Arg Leu Val Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu  
435 440 445

Leu Ala Ser Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Gly  
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Ala Arg Phe Val

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UBCV0004.ST25.txt

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Gly Thr Gly His Leu Ile Ser Ser Thr Gly Ala Leu Gly Ser Arg Ser  
35 40 45

Leu Phe Ser Pro Leu Arg Asn Ser Met Ala Asp Ser Val Asp Ser Arg  
50 55 60

Asp Ile Pro Gly Leu Pro Thr Asn Pro Ser Arg Leu Ala Ala Ala Thr  
65 70 75 80

Ser Glu Thr Cys Leu Leu Gly Gly Phe Glu Val Leu His Asp Lys Gly  
85 90 95

Pro Leu Asp Ile Leu Asn Thr Gln Ile Gly Pro Ser Ala Phe Arg Val  
100 105 110

Glu Val Glu Ala Asp Gly Thr His Ala Ala Ile Gly Glu Lys Asn Gly  
115 120 125

Leu Glu Val Ser Val Thr Leu Ser Pro Gln Glu Trp Ser Ser Leu Gln  
130 135 140

Ser Ile Asp Thr Glu Gly Lys Asn Arg Phe Val Phe Thr Gly Gly Arg  
145 150 155 160

Gly Gly Ser Gly His Pro Met Val Thr Val Ala Ser Asp Ile Ala Glu  
165 170 175

Ala Arg Thr Lys Ile Leu Ala Lys Leu Asp Pro Asp Asn His Gly Gly  
180 185 190

Arg Gln Pro Lys Asp Val Asp Thr Arg Ser Val Gly Val Gly Ser Ala  
195 200 205

Ser Gly Ile Asp Asp Gly Val Val Ser Glu Thr His Thr Ser Thr Thr  
210 215 220

Asn Ser Ser Val Arg Ser Asp Pro Lys Phe Trp Val Ser Val Gly Ala  
Page 11

UBCV0004.ST25.txt

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Gln Ala Ala Asn Ala Ala Glu Ser Ala Thr Lys Asp Gln Leu Thr Gln			
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Glu Ala Phe Lys Asn Pro Glu Asn Gln Lys Val Asn Ile Asp Ala Asn			
290	295	300	
Gly Asn Ala Ile Pro Ser Gly Glu Leu Lys Asp Asp Ile Val Glu Gln			
305	310	315	320
Ile Ala Gln Gln Ala Lys Glu Ala Gly Glu Val Ala Arg Gln Gln Ala			
325	330	335	
Val Glu Ser Asn Ala Gln Ala Gln Arg Tyr Glu Asp Gln His Ala			
340	345	350	
Arg Arg Gln Glu Glu Leu Gln Leu Ser Ser Gly Ile Gly Tyr Gly Leu			
355	360	365	
Ser Ser Ala Leu Ile Val Ala Gly Gly Ile Gly Ala Gly Val Thr Thr			
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Ala Leu His Arg Arg Asn Gln Pro Ala Glu Gln Thr Thr Thr Thr Thr			
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Val Ala Leu Met Pro Gln Glu Arg Arg Arg Phe Ser Asp Arg Arg Asp			
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Ser Gln Gly Ser Val Ala Ser Thr His Trp Ser Asp Ser Ser Ser Glu			
435	440	445	
Val Val Asn Pro Tyr Ala Glu Val Gly Gly Ala Arg Asn Ser Leu Ser			
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Ala His Gln Pro Glu Glu His Ile Tyr Asp Glu Val Ala Ala Asp Pro			
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Gly Tyr Ser Val Ile Gln Asn Phe Ser Gly Ser Gly Pro Val Thr Gly			
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500

UBCV0004.ST25.txt

505

510

Leu Ala Asn Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Ser  
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Pro Val Arg Phe Val  
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Thr Pro Val Arg Asn Ser Met Ala Asp Ser Gly Asp Asn Arg Ala Ser  
50 55 60

Asp Val Pro Gly Leu Pro Val Asn Pro Met Arg Leu Ala Ala Ser Glu  
65 70 75 80

Ile Thr Leu Asn Asp Gly Phe Glu Val Leu His Asp His Gly Pro Leu  
85 90 95

Asp Thr Leu Asn Arg Gln Ile Gly Ser Ser Val Phe Arg Val Glu Thr  
100 105 110

Gln Glu Asp Gly Lys His Ile Ala Val Gly Gln Arg Asn Gly Val Glu  
115 120 125

Thr Ser Val Val Leu Ser Asp Gln Glu Tyr Ala Arg Leu Gln Ser Ile  
130 135 140

Asp Pro Glu Gly Lys Asp Lys Phe Val Phe Thr Gly Gly Arg Gly  
145 150 155 160

Ala Gly His Ala Met Val Thr Val Ala Ser Asp Ile Thr Glu Ala Arg  
165 170 175

Gln Arg Ile Leu Glu Leu Leu Glu Pro Lys Gly Thr Gly Glu Ser Lys  
180 185 190

UBCV0004.ST25.txt

Gly Ala Gly Glu Ser Lys Gly Val Gly Glu Leu Arg Glu Ser Asn Ser  
195 200 205

Gly Ala Glu Asn Thr Thr Glu Thr Gln Thr Ser Thr Ser Thr Ser Ser  
210 215 220

Leu Arg Ser Asp Pro Lys Leu Trp Leu Ala Leu Gly Thr Val Ala Thr  
225 230 235 240

Gly Leu Ile Gly Leu Ala Ala Thr Gly Ile Val Gln Ala Leu Ala Leu  
245 250 255

Thr Pro Glu Pro Asp Ser Pro Thr Thr Asp Pro Asp Ala Ala Ala  
260 265 270

Ser Ala Thr Glu Thr Ala Thr Arg Asp Gln Leu Thr Lys Glu Ala Phe  
275 280 285

Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Leu Gly Asn Ala  
290 295 300

Ile Pro Ser Gly Val Leu Lys Asp Asp Val Val Ala Asn Ile Glu Glu  
305 310 315 320

Gln Ala Lys Ala Ala Gly Glu Glu Ala Lys Gln Gln Ala Ile Glu Asn  
325 330 335

Asn Ala Gln Ala Gln Lys Lys Tyr Asp Glu Gln Gln Ala Lys Arg Gln  
340 345 350

Glu Glu Leu Lys Val Ser Ser Gly Ala Gly Tyr Gly Leu Ser Gly Ala  
355 360 365

Leu Ile Leu Gly Gly Ile Gly Val Ala Val Thr Ala Ala Leu His  
370 375 380

Arg Lys Asn Gln Pro Val Glu Gln Thr Thr Thr Thr Thr Thr Thr  
385 390 395 400

Thr Thr Thr Ser Ala Arg Thr Val Glu Asn Lys Pro Ala Asn Asn Thr  
405 410 415

Pro Ala Gln Gly Asn Val Asp Thr Pro Gly Ser Glu Asp Thr Met Glu  
420 425 430

Ser Arg Arg Ser Ser Met Ala Ser Thr Ser Ser Thr Phe Phe Asp Thr  
435 440 445

Ser Ser Ile Gly Thr Val Gln Asn Pro Tyr Ala Asp Val Lys Thr Ser  
450 455 460

UBCV0004.ST25.txt

Leu His Asp Ser Gln Val Pro Thr Ser Asn Ser Asn Thr Ser Val Gln  
465 470 475 480

Asn Met Gly Asn Thr Asp Ser Val Val Tyr Ser Thr Ile Gln His Pro  
485 490 495

Pro Arg Asp Thr Thr Asp Asn Gly Ala Arg Leu Leu Gly Asn Pro Ser  
500 505 510

Ala Gly Ile Gln Ser Thr Tyr Ala Arg Leu Ala Leu Ser Gly Gly Leu  
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Arg His Asp Met Gly Gly Leu Thr Gly Gly Ser Asn Ser Ala Val Asn  
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Thr Ser Asn Asn Pro Pro Ala Pro Gly Ser His Arg Phe Val  
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<212> PRT

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Leu Pro Thr Asn Pro Leu Arg Phe Ala Ala Ser Glu Val Ser Leu His  
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Gly Ala Leu Glu Val Leu His Asp Lys Gly Gly Leu Asp Thr Leu Asn  
35 40 45

Ser Ala Ile Gly Ser Ser Leu Phe Arg Val Glu Thr Arg Asp Asp Gly  
50 55 60

Ser His Val Ala Ile Gly Gln Lys Asn Gly Leu Glu Thr Thr Val Val  
65 70 75 80

Leu Ser Glu Gln Glu Phe Ser Ser Leu Gln Ser Leu Asp Pro Glu Gly  
85 90 95

Lys Asn Lys Phe Val Phe Thr Gly Gly Arg Gly Gly Pro Gly His Ala  
100 105 110

Met Val Thr Val Ala Ser Asp Ile Ala Glu Ala Arg Gln Arg Ile Ile  
115 120 125

Asp Lys Leu Glu Pro Lys Asp Thr Lys Glu Thr Lys Glu Pro Gly Asp  
130 135 140

UBCV0004.ST25.txt

Pro Asn Ser Gly Glu Gly Lys Ile Ile Glu Ile His Thr Ser Thr Ser  
145 150 155 160

Thr Ser Ser Leu Arg Ala Asp Pro Lys Leu Trp Leu Ser Leu Gly Thr  
165 170 175

Ile Ala Ala Gly Leu Ile Gly Met Ala Ala Thr Gly Ile Ala Gln Ala  
180 185 190

Val Ala Leu Thr Pro Glu Pro Asp Asp Pro Ile Thr Thr Asp Pro Asp  
195 200 205

Ala Ala Ala Asn Thr Ala Glu Ala Ala Ala Lys Asp Gln Leu Thr Lys  
210 215 220

Glu Ala Phe Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Asn  
225 230 235 240

Gly Asn Ala Ile Pro Ser Gly Glu Leu Lys Asp Asp Val Val Ala Gln  
245 250 255

Ile Ala Glu Gln Ala Lys Ala Ala Gly Glu Gln Ala Arg Gln Glu Ala  
260 265 270

Ile Glu Ser Asn Ser Gln Ala Gln Gln Lys Tyr Asp Glu Gln His Ala  
275 280 285

Lys Arg Glu Gln Glu Met Ser Leu Ser Ser Gly Val Gly Tyr Gly Ile  
290 295 300

Ser Gly Ala Leu Ile Leu Gly Gly Ile Gly Ala Gly Val Thr Ala  
305 310 315 320

Ala Leu His Arg Lys Asn Gln Pro Ala Glu Gln Thr Ile Thr Thr Arg  
325 330 335

Thr Val Val Asp Asn Gln Pro Thr Asn Asn Ala Ser Ala Gln Gly Asn  
340 345 350

Thr Asp Thr Ser Gly Pro Glu Glu Ser Pro Ala Ser Arg Arg Asn Ser  
355 360 365

Asn Ala Ser Leu Ala Ser Asn Gly Ser Asp Thr Ser Ser Thr Gly Thr  
370 375 380

Val Glu Asn Pro Tyr Ala Asp Val Gly Met Pro Arg Asn Asp Ser Leu  
385 390 395 400

Ala Arg Ile Ser Glu Glu Pro Ile Tyr Asp Glu Val Ala Ala Asp Pro  
405 410 415

UBCV0004.ST25.txt

Asn Tyr Ser Val Ile Gln His Phe Ser Gly Asn Ser Pro Val Thr Gly  
420 425 430

Arg Leu Val Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu  
435 440 445

Leu Ala Ser Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Gly  
450 455 460

Gly Gly Glu Ser Ala Val Ser Thr Ala Asn Ala Ala Pro Thr Pro Gly  
465 470 475 480

Pro Ala Arg Phe Val  
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<210> 13

<211> 22

<212> PRT

<213> Escherichia coli

<400> 13

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Gly Val Gly Ser Ile Ser  
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<210> 14

<211> 485

<212> PRT

<213> Escherichia coli

<400> 14

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Leu Pro Thr Asn Pro Leu Arg Phe Ala Ala Ser Glu Val Ser Leu His  
20 25 30

Gly Ala Leu Glu Val Leu His Asp Lys Gly Gly Leu Asp Thr Leu Asn  
35 40 45

Ser Ala Ile Gly Ser Ser Leu Phe Arg Val Glu Thr Arg Asp Asp Gly  
50 55 60

Ser His Val Ala Ile Gly Gln Lys Asn Gly Leu Glu Thr Thr Val Val  
65 70 75 80

Leu Ser Glu Gln Glu Phe Ser Ser Leu Gln Ser Leu Asp Pro Glu Gly  
85 90 95

Lys Asn Lys Phe Val Phe Thr Gly Gly Arg Gly Gly Pro Gly His Ala  
Page 17

## UBCV0004.ST25.txt

100

105

110

Met Val Thr Val Ala Ser Asp Ile Ala Glu Ala Arg Gln Arg Ile Ile  
 115 120 125

Asp Lys Leu Glu Pro Lys Asp Thr Lys Glu Thr Lys Glu Pro Gly Asp  
 130 135 140

Pro Asn Ser Gly Glu Gly Lys Ile Ile Glu Ile His Thr Ser Thr Ser  
 145 150 155 160

Thr Ser Ser Leu Arg Ala Asp Pro Lys Leu Trp Leu Ser Leu Gly Thr  
 165 170 175

Ile Ala Ala Gly Leu Ile Gly Met Ala Ala Thr Gly Ile Ala Gln Ala  
 180 185 190

Val Ala Leu Thr Pro Glu Pro Asp Asp Pro Ile Thr Thr Asp Pro Asp  
 195 200 205

Ala Ala Ala Asn Thr Ala Glu Ala Ala Ala Lys Asp Gln Leu Thr Lys  
 210 215 220

Glu Ala Phe Gln Asn Pro Asp Asn Gln Lys Val Asn Ile Asp Glu Asn  
 225 230 235 240

Gly Asn Ala Ile Pro Ser Gly Glu Leu Lys Asp Asp Val Val Ala Gln  
 245 250 255

Ile Ala Glu Gln Ala Lys Ala Ala Gly Glu Gln Ala Arg Gln Glu Ala  
 260 265 270

Ile Glu Ser Asn Ser Gln Ala Gln Gln Lys Tyr Asp Glu Gln His Ala  
 275 280 285

Lys Arg Glu Gln Glu Met Ser Leu Ser Ser Gly Val Gly Tyr Gly Ile  
 290 295 300

Ser Gly Ala Leu Ile Leu Gly Gly Ile Gly Ala Gly Val Thr Ala  
 305 310 315 320

Ala Leu His Arg Lys Asn Gln Pro Ala Glu Gln Thr Ile Thr Thr Arg  
 325 330 335

Thr Val Val Asp Asn Gln Pro Thr Asn Asn Ala Ser Ala Gln Gly Asn  
 340 345 350

Thr Asp Thr Ser Gly Pro Glu Glu Ser Pro Ala Ser Arg Arg Asn Ser  
 355 360 365

Asn Ala Ser Leu Ala Ser Asn Gly Ser Asp Thr Ser Ser Thr Gly Thr  
 Page 18

370

375

UBCV0004.ST25.txt  
380

Val Glu Asn Pro Tyr Ala Asp Val Gly Met Pro Arg Asn Asp Ser Leu  
385 390 395 400

Ala Arg Ile Ser Glu Glu Pro Ile Tyr Asp Glu Val Ala Ala Asp Pro  
405 410 415

Asn Tyr Ser Val Ile Gln His Phe Ser Gly Asn Ser Pro Val Thr Gly  
420 425 430

Arg Leu Val Gly Thr Pro Gly Gln Gly Ile Gln Ser Thr Tyr Ala Leu  
435 440 445

Leu Ala Ser Ser Gly Gly Leu Arg Leu Gly Met Gly Gly Leu Thr Gly  
450 455 460

Gly Gly Glu Ser Ala Val Ser Thr Ala Asn Ala Ala Pro Thr Pro Gly  
465 470 475 480

Pro Ala Arg Phe Val  
485